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ABSTRACT

Business and higher education must form a true partnership with primary and secondary school professions to meet the critical problems posed by basic skill deficiencies in the nation's work force. Despite existing barriers, suggestions have been made regarding ways in which cooperation can be achieved. It has been argued that cooperative education should be expanded; more local and regional interaction is needed between top executives and educators to explore mutual opportunities and problems; and the most successful partnerships have been broad-based, and interdisciplinary, and have been initiated and administered by universities with collaborative financial support from several industries. Finally, because education and industry have different purposes and values, each must consider what they can realistically do for each other, especially in terms of which kinds of preparation each can do most effectively and efficiently. (YLB)

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"Education and Business Prospering Together:
Methods Which Work in the Collaborative Process"

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Let me start by addressing a major problem in which the stakes are enormous for both business and higher education. A significant proportion of those who are moving into the work force are so deficient in elementary skills--of reading, writing, computing, even speaking--that business has had to spend substantial sums in order to try to remedy the deficiencies. Similarly, remedial work at the college level has become a major enterprise, often draining away resources that should be used for other purposes. The job ought to be done at the primary and secondary level, to be sure, but I take it that none of us is willing to waste a generation or two while we wait for that job to be done. It would be not only a human tragedy of major proportions--indeed it already is--but a national danger of more than minor consequence.

What we need to do, I am convinced, is to stop lecturing from a distance to our primary and secondary school professionals, and search out together how business and higher education can work with them to provide them with the tools with which to do the job. Make no mistake. Where teachers are offered pretty close to the lowest rewards of our society (Ohio certified two physics teachers all of last year) the likelihood of significant improvement may be an illusion. If monetary rewards are not in the cards, given the magnitude of our educational requirements, what other incentives can we help develop in order to ensure the improvement of the professionals upon whom we rely for the basic preparation of the bulk of our work force? This is a common task--and simple exhortation won't go very far in getting it done.

It has become a truism to note that we will be dealing with the effects of demography--changes in the quantity, the quality, the age, even the location of the work force--in the 1980's and well beyond. It is questionable whether business has as yet been sufficiently sensitive to the need for upgrading and retraining an aging and shifting work force. And it is certain that faculty preparation for working with an adult population is still in its very early infancy. Men and women in mid-career who come seeking new skills, broader perspectives, fresh information cannot be taught as though they were young people of 17 to 21, devoting full-time to on-campus studies, rather less than more experienced in the complex realities of our rapidly changing society.

We need--we in business and in higher education--we need to talk more systematically with one another about the kinds of teaching--and teachers--required to do a job that is quite different from the standard models in all of our colleges and universities today. Of course some of us are substantially into continuing education, but nevertheless it continues to be a side-show rather than the main attraction that age alone is going to make it in the years ahead. Just as in the case of the shortage of engineering instructors which has been a national concern for some years now, so more generally will it be necessary, in my view, to find ways and means to seek incentives for the development of joint ventures--mostly at the local level, I suspect--to address the whole question of the constant and recurring upgrading of our national work force--the unskilled and semi-skilled no less than the managers and technicians who come in the first instance from our colleges and universities.

None of us, I am sure, has any illusions about the barriers in the way of effective business/higher education cooperation in this field.

From the credentialism that inhibits flexibility to the necessary caution that gives educational institutions their long-range stability, the collegiate impediments have been widely and loudly identified. The inflexibility of many business managers, their ineptitude in communicating their needs to the educational establishment is often less clearly seen. All of the barriers need to be worked on--and again only by constant and systematic communication are we likely to make headway in dispelling business's perception that education is uninterested in its needs, or education's fear that business is trying inappropriately to dictate the direction taken by educational institutions.

Concretely, what can we do together? Let me simply tick off a few suggestions that have surfaced again and again at meetings such as this among a variety of groups.

1) Cooperative education should be expanded. As president of the institution where coop education began in the United States, in 1906, let me say that a proper program requires real and constant commitment in the work place and on the campus. Business managers must be willing to assign the time necessary to teach, not just provide employment for college students; and professional development personnel must be involved fully in the liaison between faculty and firms if the mode is to work successfully. A coop program that is only a way of providing for the costs of an education is worse than useless; a carefully constructed, genuinely cooperative program can pay high dividends.

2) We need to create regional groupings--Councils, more informal bodies, whatever--of top executives and educators to identify business

needs, explore funding mechanisms, in general explore mutual opportunities and mutual problems.

Everyone and his brother--or sister--now seems frantically to be seeking to emulate Route 128 or Silicon Valley or The Golden Triangle. It appears to me highly unlikely that we will have many more such miracles all over the country. But we certainly will have--we must have--substantially greater business-higher education collaboration at the local and regional level. Such local and regional relations, whether they be huge, like the Westinghouse-Carnegie Mellon project or much more modest like my own University's robotics project with Cincinnati Milacron and several other firms--are more likely to be viable than additional new research parks or condominia.

On the whole, it would appear that the most successful industry-university cooperative research efforts have been initiated and administered by universities with collaborative financial support by several industries. The best have been broad-based and interdisciplinary, involving a number of university departments and colleges. Generally, I would suggest, the research ought not be so narrow or so applied that it is of benefit to only a single industrial firm, but there will be cases in which such a criterion is neither possible nor perhaps desirable. One other word about such multi-firm projects. The research results of such common efforts are likely to yield long-term, yet foreseeable economic gains for the participating industries. This is particularly significant since the basic, interdisciplinary, and high-risk nature of such research is likely to discourage individual firms from conducting such research on their own. All of this, it seems to me, has been thoughtfully spelled

out by the National Science Foundation in its May, 1982, practice manual for university-industry cooperative research centers.

All this is not to say that there are no promising initiatives of a somewhat broader dimension. The Ohio Board of Regents, for example, has put before the State's General Assembly a proposal to establish an Ohio Business, Education and Government Alliance to pool the state's resources in a program of economic renewal. The Alliance would be comprised of three operating councils on education and training, technology/knowledge transfer, and research and development, headed by a coordinating council with representatives from business and industry, government, and higher education. If there must be developed, as some have argued, a new social compact, then its partners will have to be higher education, the private sector, and government.

3) Having said all this, we must also give thoughtful consideration to what higher education can do for business and what it can't. And the reverse, as well. It is easy to forget that academia and industry do have different purposes, even differing values. In a recent editorial in Science, Philip H. Abelson made the point that in industry, the pressure of the bottom line inevitably dictates policies with respect to research and development. Not the pursuit of knowledge, but profit is the governing imperative, with obvious implications for the release of research results, the longevity of research projects, the phenomena to be studied. There are increasing and exciting examples of research and development collaboration across the country, but all of us must be sensitive to the inevitable problems and tensions they bring in their wake. A very short time ago, private firms and universities dreamed of unlimited possibilities--and

profits--from their collaboration in one form or another of genetic engineering. Now a number of such firms have withdrawn from the ring, disillusioned or at least chastened by the stubborn refusal of the phenomena being studied to respond quite as predictably to the needs of the entrepreneur. And more than a few university researchers have begun to have doubts about all the presumed benefits to be derived from the new partnerships so eagerly entered into. Somehow, if our economy is genuinely to renew itself in the years ahead, the problems of emphasis and of ultimate purpose will have to be faced so that cooperation, from the universities' point of view, does not mean the cooperation of academia nor establish industrial instead of educational bailiwicks within our academic institutions.

4) Similarly, in the area of teaching, we need to consider more thoughtfully what higher education can do for business and what it can't. Too often expectations have exceeded reality on the one side; claims have exceeded reality on the other. Some kinds of preparation will always be done better in-house by business than on campus; conversely, some kinds of instruction are wasteful when the business enterprise feels compelled to undertake it on its own. There are various modes of training and of education, from commercial, profit-making training enterprises to huge in-house business educational endeavors to a complex series of college and university programs. Much of what is done, many of us have come to believe, is overlapping, duplicative, essentially wasteful. Business and higher education need to work together more effectively in order to be more effective educationally.

I don't want to be misunderstood. If I have emphasized some of the pitfalls of business-higher education collaboration, it is because I

think many of them can be and are being overcome in the national interest. Edward Jefferson, the chairman of DuPont, commented recently that "the best scientists, those who are most talented in their work and stimulating to others, rarely see a well between basic and applied research. They want their work to serve society, and their energy and creativity is stimulated both by advancing the state of knowledge and by the possibility of practical contributions. They often have practical ideas, and understand the vital role industry, with its emphasis on innovation, plays into translating discovery into useful products." To be sure, some scholars have little understanding of the social implications of arrangements that may promote their work, just as business leaders sometimes suffer from the same myopia. But properly controlled, appropriate collaborative ventures can clearly help both business and academia...

There is much more that might be touched upon, but I think I've said enough to do my part in getting this discussion going. The possibilities are substantial though limited, and the importance of enhanced cooperation is, I am certain, clearly evident.

Henry R. Winkler
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